

memorandum



**Whitlock & Weinberger
Transportation, Inc.**

490 Mendocino Avenue
Suite 201
Santa Rosa, CA 95401

voice (707) 542-9500
fax (707) 542-9590

website www.w-trans.com
email zmatley@w-trans.com

Date: April 23, 2014
To: **Mr. Steve Marshall** From: Zack Matley
 Mr. Bob Brown Project: NOV911
 City of Novato

Subject: San Marin Interchange Evaluation – Alternatives 3 and 4

W-Trans has completed an analysis of operation at and near the Atherton Avenue-San Marin Drive freeway interchange at US 101 under two buildout scenarios that are intended to represent a new future “baseline” to which other alternatives may be compared. The two alternatives, referred to as Alternatives 3 and 4, assume buildout of the North Redwood Boulevard Corridor Study that adopted in January, 2014.

Description of Alternatives

Following is a description of the assumptions applied in each Alternative.

Alternative 3

- Maintain Citywide General Plan buildout assumptions, except for parcels in the North Redwood Boulevard Corridor Study area (NRB study), for which the NRB study development assumptions are instead applied. Alternative 3 excludes the Marin Municipal Water District (MMWD) and Golden Gate Transit (GGT) parcels on the east side of the SMART rail corridor from the NRB buildout assumptions.
- Apply the same adjustments for vacant office space and entitled projects in the area that have been used in previous analyses.
- Assume roadway mitigation currently included in the General Plan/CIP, plus signalization at the intersection of Atherton Avenue/Binford Road and coordination of interchange-area signals (previously identified as necessary under all future scenarios).

Alternative 4

- Assumptions are identical to Alternative 3, except that the MMWD and GGT parcels in the North Redwood Boulevard study area are assumed to be developed with a 100,000 square foot home improvement store.

Findings

With the Alternative 3 buildout assumptions and future infrastructure improvements, including widening of the San Marin Drive railroad overpass by one lane and installation of a signal at Atherton Avenue/Binford Road, intersection levels of service and queuing are projected to remain at acceptable levels. With the Alternative 4 buildout assumptions, which add a home improvement store in the North Redwood Boulevard study area, conditions would generally deteriorate only slightly, except at the

intersection of Redwood Boulevard/San Marin Drive where unacceptable LOS E operation overall is projected to occur during the p.m. peak hour. Among the individual intersection approaches, the worst operation would occur on the northbound and southbound approaches, both of which would encounter LOS F operation.

The findings of the operational analysis are shown in Table I.

Table I
Summary of Operational Findings

Alternative	LOS	Queuing
Alternative 3	The two freeway ramp intersections as well as Redwood/San Marin operate acceptably in the LOS C-D range during both peak hours.	Queues are generally acceptable in the morning. In the afternoon, queuing would not spill back to nearby intersections, though on eastbound San Marin Drive would extend nearly to East Campus Drive, and on northbound Redwood Boulevard would extend nearly to Escallonia Drive. Queues on the freeway ramps would not extend onto US 101 during either peak hour.
Alternative 4	The two freeway ramp intersections operate at LOS C-D during both peak hours. Redwood/San Marin operates at LOS C in the morning, but at LOS E in the afternoon.	Queues remain generally acceptable during both peak hours, extending slightly further than in Alternative 3 but still avoiding spillback on the ramps to the US 101 mainline.

Potential Alternative 4 Mitigation

An assessment of the mitigation needed to improve the Redwood Boulevard/San Marin Drive intersection to acceptable levels was completed. It was determined that reconfiguring the lane assignments on the northbound Redwood Boulevard approach to include dual right turn lanes, a single through lane, and single left turn lane would improve operation to an acceptable LOS D during both peak hours. Queuing on northbound Redwood Boulevard would be reduced substantially. Acceptable operation and queuing would also be maintained at the nearby freeway ramps during both peak hours.

Comparison to Previous Buildout Assumptions

A previous analysis of General Plan buildout traffic conditions was conducted by W-Trans and summarized in a February 13, 2013 memo titled "San Marin Freeway Interchange – Preliminary Findings." This prior analysis identified the need to install the signal at Atherton Avenue/Binford Road, as well as the need to maintain coordinated signal timing at the interchange-area signals.

Alternative 3 would add approximately 50 more p.m. peak hour trips to the interchange than the previous buildout assumptions, while Alternative 4 would add approximately 150 more p.m. peak hour trips than previously evaluated. The land use changes associated with the NRB study (for example, changing some assumed land uses from industrial to retail, as well as some uses from retail to residential) would also result in slight changes to traffic flow patterns. In the end, however, the traffic operation findings ended up being similar. With the recommended improvements and those identified in the CIP, acceptable operation appears to be achievable, though the system would be approaching capacity.